

WHAT IS CLAIMED IS:

1. A method of forming a patterned photoresist with a non-distorted profile, comprising:

5 forming a first photoresist on a substrate, the first photoresist being suitable for patterning a trench pattern;

forming a second photoresist on the first photoresist, the second photoresist being suitable for patterning an iso-line pattern; and

10 performing photolithography to pattern the second and the first photoresist to form a patterned photoresist.

2. The method of claim 1, wherein a diffusion rate of photo-acids in the first photoresist is faster than that of photo-acids in the second photoresist during photolithography.

15 3. The method of claim 1, wherein contrast ability of the first photoresist is lower than contrast ability of the second photoresist during photolithography.

20 4. The method of claim 1, wherein the first photoresist is thin enough to avoid footing formation after photolithography.

25 5. The method of claim 1, wherein thickness of the second photoresist is determined by a desired etching depth and an etching selectivity of the second photoresist and a desired etching material.

6. The method of claim 1, wherein the second photoresist is thick enough to be an etching mask for a later etching.

30 7. A method of forming a patterned photoresist with a non-distorted profile, comprising:

forming a first photoresist on a substrate;
forming a second photoresist on the first photoresist;
exposing the second and the first photoresist, wherein a diffusion rate of
photo-acids generated during exposure in the first photoresist is faster than that
of photo-acids in the second photoresist; and
developing the first and the second photoresists to form a patterned
photoresist.

8. The method of claim 7, wherein the first photoresist is thin enough to
avoid footing formation after photolithography.

9. The method of claim 7, wherein a thickness of the second photoresist is
determined by a desired etching depth and an etching selectivity of the second
photoresist and a desired etching material.

10. The method of claim 7, wherein the second photoresist is thick
enough to be an etching mask for a later etching.

11. A method of forming a patterned photoresist with a non-distorted
profile, comprising:

forming a first photoresist on a substrate;
forming a second photoresist on the first photoresist; and
performing photolithography to pattern the second and the first
photoresist, wherein a contrast ability of the first photoresist is lower than that of
the second photoresist.

12. The method of claim 11, wherein the first photoresist is thin enough to
avoid footing formation after photolithography.

13. The method of claim 11, wherein a thickness of the second photoresist is determined by a desired etching depth and an etching selectivity of the second photoresist and a desired etching material.

5 14. The method of claim 11, wherein the second photoresist is thick enough to be an etching mask for a later etching.

09978155-101604